AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended). A method for detecting a pathogenic ~~or any other~~ condition ~~of~~ in an organism comprising the steps of:

~~taking a sample, and said sample being a body fluid sample from said organism selected from the group consisting of hemofiltrate, ascitic fluid and urine;~~

~~wherein said organism is selected from the group consisting of animals and humans~~;

measuring all low-molecular weight peptides ~~from said~~ having a molecular weight of not more than 30,000 Daltons detectable by MALDI mass spectrometry present in a sample of body fluid taken from said organism ~~containing high-molecular weight peptides and low-molecular weight peptides, as an indication of the pathogenic or any other condition of said organism;~~

~~wherein said low-molecular weight peptides, used for said measurement have a molecular weight of not more than 30,000 Dalton;~~

by directly detecting said low-molecular weight peptides by MALDI mass spectrometry; ~~and wherein all low-molecular weight peptides present in the sample which can be detected by MALDI mass spectrometry are detected;~~ to provide a distribution of low-molecular weight peptides; and

relating said low-molecular weight peptides to a reference~~; and~~

~~said reference comprises~~ comprising a distribution of low-molecular weight peptides in a representative cross-section of defined controls of said organism to produce a differential peptide ~~display.~~display;

wherein said body fluid sample is selected from the group consisting of a hemofiltrate, an ascitic fluid, and urine, wherein said organism is an animal or a human, and wherein said differential peptide display is indicative of a pathogenic condition.

Claims 2-4 (cancelled).

Claim 5 (currently amended). The method according to claim 1, wherein ~~it is possible to detect single peptides directly by a measuring technique, to detect several peptides by a measuring technique or even all the low-molecular weight peptides present in the sample which can be detected by a measuring technique; and~~

~~wherein~~ said detected low-molecular weight peptides ~~used for said measurement~~ have a molecular weight of from 100 to 10,000 ~~Dalton~~ Daltons.

Claim 6. (currently amended): The method according to claim 1,

wherein high-molecular weight peptides having a molecular weight of greater than 30,000 Daltons are also present in said sample and said high-molecular weight peptides are either separated off prior to measurement of said low-molecular weight peptides, or left unconsidered, in terms of measurement or evaluation, in the recording of the sample.

Claims 7-8 (cancelled).

Claim 9 (currently amended). The method according to claim 1,

wherein said sample is divided into different fractions prior to said measurement of the low-molecular weight peptides, and the fractions are measured under different detection conditions.

Claims 10-15 (cancelled).

Claim 16 (new). A method of detecting the physiological condition of an organism without reference to a preconceived diagnosis comprising the steps of:

(a) directly measuring the distribution of all detectable low-molecular weight peptides in a sample from a test organism; and

(b) comparing the distribution measured in step (a) to a distribution of low-molecular weight peptides from a sample of a reference organism to provide a differential peptide display illustrating the differences in low-molecular weight peptide distribution between the test organism and the reference organism;

wherein the low-molecular weight peptides measured have a molecular weight of not more than 30,000 Daltons; said distributions of low-molecular weight peptides are directly measured by mass spectrometry; and wherein the differential peptide display provides for detection of the physiological condition of the test organism without reference to a preconceived diagnostic hypothesis regarding the condition of the test organism.

Claim 17 (new). The method of claim 16 wherein the distributions of low-molecular weight peptides are measured by MALDI mass spectrometry or electrospray ionization mass spectrometry.

Claim 18 (new). The method of claim 16 wherein the samples are separated into fractions by liquid chromatography prior to measuring the low-molecular weight peptide distributions.

Claim 19 (new). The method of claim 16 wherein the low-molecular weight peptides measured have a molecular weight of from 100 to 10,000 Daltons.

Claim 20 (new). The method of claim 16 wherein the test organism and reference organism are both humans or are both the same species of animal.

Claim 21 (new). The method of claim 16 wherein the samples are ultrafiltrates of a bodily fluid from the organism selected from the group consisting of a hemofiltrate, a urine ultrafiltrate, and an ascitic fluid ultrafiltrate.

Claim 22 (new). The method of claim 21 wherein the ultrafiltrate is obtained by filtering the bodily fluid through a size exclusion membrane having an exclusion size of 30,000 Daltons.

Claim 23 (new). The method of claim 20 wherein the reference organism is a normal, healthy organism, and wherein the differential peptide display indicates whether the test organism has a physiological condition that differs from the physiological condition of the healthy reference organism.

Claim 24 (new). The method of claim 23 wherein the differential peptide display is compared to differential peptide displays from organisms with known pathological conditions in order to diagnose whether the test organism has a known pathological condition.

Claim 25 (new). The method of claim 16 wherein the sample of the reference organism is from the same individual test organism and the differential peptide display indicates a physiological change in the test organism over a period of time.

Claim 26 (new). The method of claim 16 wherein the test organism is a genetically engineered organism and the reference organism is a genetic control organism; and wherein the differential peptide display indicates whether the genetically engineered organism exhibits an unpredicted, undesirable or desirable physiological change relative to the genetic control reference organism.

Claim 27 (new). The method of claim 16 wherein high-molecular weight peptides are also present in said sample and said high-molecular weight peptides are either separated off prior

to measurement of said low-molecular weight peptides, or left unconsidered, in terms of measurement or evaluation, in the recording of the sample.

Claim 28 (new). A method of detecting a pathological condition in a human or animal without reference to a preconceived diagnosis comprising the steps of:

(a) directly measuring the distribution of all detectable low-molecular weight peptides in a sample from a test organism;

(b) comparing the distribution measured in step (a) to a distribution of low-molecular weight peptides from a sample of a reference organism to provide a differential peptide display illustrating the differences in low-molecular weight peptide distribution between the test organism and the reference organism; and

(c) comparing the differential peptide display in step (b) with a differential peptide display from an organism having a known pathological condition;

wherein each of the test organism, the reference organism, and the organism having a known pathological condition is a human or each is an animal; the low-molecular weight peptides measured have a molecular weight of not more than 30,000 Daltons; said distributions of low-molecular weight peptides are directly measured by mass spectrometry; and wherein the comparison in step (c) provides for diagnosis of a pathological condition in the test organism without reference to a preconceived diagnostic hypothesis regarding the condition of the test organism.

Claim 29 (new). The method of claim 28 wherein the low-molecular weight peptides measured have a molecular weight of from 100 to 10,000 Daltons.

Claim 30 (new). The method of claim 28 wherein the samples are separated into fractions by liquid chromatography prior to measuring the low-molecular weight peptide distributions.

Claim 31 (new). The method of claim 28 wherein the samples are ultrafiltrates of a bodily fluid from the organism selected from the group consisting of a hemofiltrate, a urine ultrafiltrate, and an ascitic fluid ultrafiltrate.

Claim 32 (new). The method of claim 31 wherein the ultrafiltrate is obtained by filtering the bodily fluid through a size exclusion membrane having an exclusion size of 30,000 Daltons.

Claim 33 (new). The method of claim 28 wherein the distributions of low molecular weight peptides are measured by MALDI or electrospray ionization mass spectrometry.

Claim 34 (new). The method of claim 28 wherein high-molecular weight peptides are also present in said sample and said high-molecular weight peptides are either separated off prior to measurement of said low-molecular weight peptides, or left unconsidered, in terms of measurement or evaluation, in the recording of the sample.